Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

near the "Elephant Marsh" on the Shiré, and accompanied them in their slow progress amongst the shoals of that much-obstructed river until February 13th, when he started alone for the Mission Station. Arrived there he found the whole district suffering from famine, and a journey overland to Teté to purchase cattle being proposed, Mr. Thornton volunteered to undertake it in company with the Rev. Mr. Rowley. The privations and exposure to which he was subjected in the toilsome walk over the country to Teté and back, encumbered with the charge of more than 100 head of sheep and goats, seem to have tried much a constitution already weakened by previous over-exertion. He returned to the Mission Station from his successful trip on the 2nd of April. On the 11th, having rejoined Dr. Livingstone on board the *Pioneer*, he was taken ill with dysentery and fever, and on the 21st he died. The Rev. Mr. Rowley, on receiving notice of the critical state of his friend and late companion, hastened to the place where the steamers lay, hoping to find him still alive; but "death," as he records the event in his journal, "was beforehand with me—when I arrived I found all hands assembled around his grave." A copy of Mr. Thornton's Journals, made by his sisters, has been presented to the Society, and will be bound and preserved in the Library. It forms eleven large volumes of MS., and includes, as mentioned by the President in his last anniversary address, "the details of upwards of 7000 observations made to fix geographical points and to determine altitudes" in the Zambesi region. The Journals also contain an immense amount of geological and mineralogical data, the correlation of which will be perhaps an almost impossible task in the absence of their gifted author.—ED.]

XII.—*On a few Fossil Bones from the Alluvial Strata of the Zambesi Delta.* By JOHN KIRK, ESQ., M.D., F.R.G.S.

Read, April 25, 1864.

THE following notes relate to a collection of fossil remains found in the bed of a stream which joins the Zambesi 40 miles from the present coast-line, near the head of the delta, and which carries off, during the rains, the surface-water from the plain to the coast.

The fossils occurred loose, mingled with quartz pebbles, and nodules of indurated ferruginous clay, polished and blackened. They had been transported by the rush of water from a little way inland, and were more or less rounded, but perfectly formed whenever the matrix adhered. This resembled the soil of the delta; being a clay mixed with sand, and impregnated with titanic iron.

Of Mammals, bones and teeth of large antelopes, probably the Eland and Kobus, were most abundant; next, those of the buffalo, hippopotamus, wart-hog, and lion. Among reptiles, fragments of the osseous back of the water-tortoise, and crocodile bones were found; the former being the most curious of all, with the exception of the vertebræ of antelopes. Although no entire skull or long bone was found, the vertebræ were well preserved, as also were the ribs, which made the absence of long bones of the limbs the more remarkable.

Besides bones there were many fragments of pottery, rounded on the edges and having in some cases the same clay matrix adhering to them. The surface of the ware was polished and blackened in the peculiar manner found in the tropics. A fresh fracture had the same appearance as the half-baked pottery now in use; but the surface markings differed from any known to Dr. Livingstone or myself. The presumption seemed to be that, like the bones, they had been washed from some of the clay strata cut through in the course of the creek; but, from an opportunity of following it up not presenting itself, it is doubtful whether both had come from the same locality.

Villages in that region at the present day are commonly placed near a lagoon or creek, and all refuse cast out speedily rolls down into the water. Besides, many tribes have now a superstition, which leads them to cast the bones of any animal eaten at once into the water. That these bones have never lain for many months on the plain is quite evident; for in these parts, under the powerful action of sun and moisture, disintegration speedily ensues even in solid bones. Although wounded and dying animals, such as buffalo and water-buck, often betake themselves to the shelter of a marsh and there expire, it must be seldom that their remains are favourably situated for becoming imbedded in the clay strata.

Further researches in similar situations in Africa, and in the plains left by the shrinking waters of the Nyassa Lake, may yet afford some information respecting the former inhabitants of that continent, of whom we have at present no knowledge. The present race will leave behind them nothing but such remains as those we have found in the Zambesi delta. In passing through a country which a few years before had been thickly peopled, the only signs of former settlements consisted in the stones used in grinding corn; but in a purely pastoral region even this would not have been left, while the remains of animals could have been preserved only in places where they have been cast into water and buried up speedily in mud.

The few specimens which have reached us out of the number we collected belong to species now existing in the Zambesi delta; the buffalo, the *Crocodilus vulgaris*, and the water-tortoise. As to the others, no difference was remarked when I examined them whilst in the country. The teeth and tusks of the hippopotamus were certainly identical with those of the species now existing in the river.

Similar phenomena were observed on the western shore of Lake Nyassa, which, in shrinking, as proved by elevated sand-beaches, has left clay-flats now crossed by affluent streams. At the mouth of one of these, portions of the frontal bone of an animal and the back of a tortoise were found semifossilised polished and blackened, along with indurated clay nodules, just as on the banks of the Zambesi.

XIII.—*On the Antiquity of the Physical Geography of Inner Africa.* By SIR RODERICK I. MURCHISON, K.C.B., Pres. R.G.S.

Read, April 25, 1864.

WE must all regret that the fossil bones collected by Dr. Livingstone and Dr. Kirk, and which the last-mentioned gentleman has described, should be a remnant only of those remains, and other natural history objects, collected by him. His chief collections having been sent by trading vessels to Mosambique, and, not having yet reached this country, it is feared they may have been lost. The geological maps of Mr. Richard Thornton (excepting one of the Kilima-njaro snowy mountain, which he prepared when he was the companion of Baron C. von der Decken), including those which he was busily occupied in terminating when he died in the Zambesi country, have in like manner been sent away in ships, which have not been heard of, though we may hope that these as well as the collections of Dr. Kirk may still be recovered.

The great interest which attaches to the relics saved by Dr. Kirk is, that though they have been so long entombed in argillaceous drift as to have lost their gelatine, and to have become truly fossil, they all belong to the same species of animals which are still living in South Africa. This, indeed, was the opinion of Dr. Kirk, when he placed these bones at my disposal, as being those of a buffalo, a crocodile, and a water-tortoise. With these were quantities of bones of the various species of antelopes and other animals which now inhabit South Africa, including hippopotami. Prof. Huxley also has at my request examined the vertebræ of the fossil buffalo, and he has identified them with the bones of the living Cape buffalo.

On my own part, I may observe that this discovery strongly supports the theoretical view which I put before this Society in the